Remarks

Claims 47-84 were pending in the application. Claims 47-66 were allowed. Claims 67-84 were rejected. Claims 1-46 were previously canceled. Claims 82-84 are canceled without prejudice to or disclaimer of the subject matter recited therein. Claim 67 is amended. Claims 47-81 are now pending in the application. Claims 47 and 67 are the independent claims. Reconsideration of the amended application is respectfully requested.

Support for the amendment to claim 67 can be found in the written description, for example, in the description of Example 1 on page 14

The examiner rejected claims 82-84 under 35 USC §112 as failing to comply with the written description requirement. Claims 82-84 are canceled.

The examiner rejected claims 67, 69-72, 75-78, 80, and 81 as being unpatentable over Groves et al., in view of Goodrich et al.

Independent claim 67 recites a microchannel electrophoresis chamber that includes at least one channel having a bottom surface including a substrate-supported membrane. The substrate-supported membrane includes a substrate and a fluid lipid membrane. The fluid lipid membrane is composed only of lipids swelled from a dried up state by the addition of only water, or a buffer solution, or both.

In contrast, Groves et al. disclose a microchannel electrophoresis chamber that does not include a dried membrane, or a membrane that had been dried, as acknowledged by the examiner. Goodrich et al. disclose a method of freeze-drying lipid membranes for storage and later use. However, Goodrich et al. require that additional agents be applied

to the lipids for freeze-drying and storage. For example, a buffer that must include at least one membrane-permeant cryoprotectant is added in Example 1; and in Example 2, different monosaccharides/disaccharides/polymers are added. Goodrich et al. do not disclose or suggest in any of the examples or anywhere else in the reference that a substrate-supported membrane could exist as lipids only in a dried-up state, to be swelled by only water or a buffer solution, as recited in claim 67. Goodrich et al. only disclose lipids that are freeze-dried with buffers and additional agents, and state that such additives must be added.

For at least the reasons stated above, it is submitted that no combination of the teachings of Groves et al. and Goodrich et al. could render obvious the invention recited in claim 67. Claims 69-72, 75-78, 80, and 81 depend from claim 67, and therefore also are not rendered obvious by this combination. The rejection of claims 67, 69-72, 75-78, 80, and 81, therefore, should be withdrawn.

The examiner rejected claims 67, 69, 70, and 72-80 as being unpatentable over Boxer et al., in view of Goodrich et al.

Independent claim 67 recites a microchannel electrophoresis chamber that includes at least one channel having a bottom surface including a substrate-supported membrane. The substrate-supported membrane includes a substrate and a fluid lipid membrane. The fluid lipid membrane is composed only of lipids swelled from a dried up state by the addition of only water, or a buffer solution, or both.

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For at least the reasons stated above, it is submitted that no combination of the teachings of Boxer et al. and Goodrich et al. could render obvious the invention recited in claim 67. Claims 69, 70, and 72-80 depend from claim 67, and therefore also are not rendered obvious by this combination. The rejection of claims 67, 69, 70, and 72-80, therefore, should be withdrawn.

The examiner rejected claims 67, 69-72, 75-78, 80, and 81 as being unpatentable over Groves et al., in view of Hianik et al.

Independent claim 67 recites a microchannel electrophoresis chamber that includes at least one channel having a bottom surface including a substrate-supported membrane. The substrate-supported membrane includes a substrate and a fluid lipid membrane. The fluid lipid membrane is composed only of lipids swelled from a dried up state by the addition of only water, or a buffer solution, or both.

In contrast, Groves et al. disclose a microchannel electrophoresis chamber that does not include a dried membrane, or a membrane that had been dried, as acknowledged by the examiner. Hianik et al. disclose preservation and storage of a dried, substrate-supported lipid bilayer membrane, with recovery of membrane parameters on hydration. However, the goal of the process disclosed by Hianik et al. is to explore the benefits of using trehalose for the stabilization of the physical parameters of bilayer lipid membranes on a solid substrate on dehydration. See page 299, column 1, lines 17-21 and page 299, column 2, lines 20-22. Hianik et al. do not disclose or suggest that a substrate-supported membrane could exist as lipids only in a dried-up state, to be swelled by only water or a buffer solution, as recited in claim 67. In fact, in the first cited passage, Hianik et al. state that dehydration of the lipid bilayer causes damage to the bilayer, and implies that some additive must be used in order to effectively dry the membrane. Hianik et al. only teach the dehydration of lipids through the use of an additive.

For at least the reasons stated above, it is submitted that no combination of the teachings of Groves et al. and Hianik et al. could render obvious the invention recited in claim 67. Claims 69-72, 75-78, 80, and 81 depend from claim 67, and therefore also are not rendered obvious by this combination. The rejection of claims 67, 69-72, 75-78, 80, and 81, therefore, should be withdrawn.

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Independent claim 67 recites a microchannel electrophoresis chamber that includes at least one channel having a bottom surface including a substrate-supported

membrane. The substrate-supported membrane includes a substrate and a fluid lipid membrane. The fluid lipid membrane is composed only of lipids swelled from a dried up state by the addition of only water, or a buffer solution, or both.

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The examiner rejected claim 68 as being unpatentable over Groves et al., in view of Goodrich et al., and further in view of Bailey et al.

Claim 68 depends from claim 67. Independent claim 67 recites a microchannel electrophoresis chamber that includes at least one channel having a bottom surface including a substrate-supported membrane. The substrate-supported membrane includes a substrate and a fluid lipid membrane. The fluid lipid membrane is composed only of lipids swelled from a dried up state by the addition of only water, or a buffer solution, or both.

In contrast, Groves et al. disclose a microchannel electrophoresis chamber that does not include a dried membrane, or a membrane that had been dried, as acknowledged by the examiner. Goodrich et al. disclose a method of freeze-drying lipid membranes for storage and later use. However, Goodrich et al. require that additional agents be applied to the lipids for freeze-drying and storage. For example, a buffer that must include at least one membrane-permeant cryoprotectant is added in Example 1; and in Example 2, different monosaccharides/disaccharides/polymers are added. Goodrich et al. do not disclose or suggest in any of the examples or anywhere else in the reference that a substrate-supported membrane could exist as lipids only in a dried-up state, to be swelled by only water or a buffer solution, as recited in claim 67. Goodrich et al. only disclose lipids that are freeze-dried with buffers and additional agents, and state that such additives must be added.

Bailey et al. do not overcome the noted deficiencies of the teachings of Groves et al. and Goodrich et al.

For at least the reasons stated above, it is submitted that no combination of the teachings of Groves et al., Goodrich et al., and Bailey could render obvious the invention recited in claim 68. The rejection, therefore, should be withdrawn.

The examiner rejected claim 68 as being unpatentable over Boxer et al., in view of Goodrich et al., and further in view of Bailey et al.

Claim 68 depends from claim 67. Independent claim 67 recites a microchannel electrophoresis chamber that includes at least one channel having a bottom surface including a substrate-supported membrane. The substrate-supported membrane includes a substrate and a fluid lipid membrane. The fluid lipid membrane is composed only of lipids swelled from a dried up state by the addition of only water, or a buffer solution, or both.

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are freeze-dried with buffers and additional agents, and state that such additives must be added.

Bailey et al. do not overcome the noted deficiencies of the teachings of Groves et al. and Goodrich et al.

For at least the reasons stated above, it is submitted that no combination of the teachings of Boxer et al., Goodrich et al., and Bailey et al. could render obvious the invention recited in claim 68. The rejection, therefore, should be withdrawn.

The examiner rejected claim 68 as being unpatentable over Groves et al., in view of Hianik et al., and further in view of Bailey et al.

Independent claim 67 recites a microchannel electrophoresis chamber that includes at least one channel having a bottom surface including a substrate-supported membrane. The substrate-supported membrane includes a substrate and a fluid lipid membrane. The fluid lipid membrane is composed only of lipids swelled from a dried up state by the addition of only water, or a buffer solution, or both.

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Bailey et al. do not overcome the noted deficiencies of the teachings of Groves et al. and Hianik et al.

For at least the reasons stated above, it is submitted that no combination of the teachings of Boxer et al., Hianik et al., and Bailey et al. could render obvious the invention recited in claim 68. The rejection, therefore, should be withdrawn.

Based on the foregoing, it is submitted that all rejections have been overcome. It is therefore requested that the Amendment be entered, the claims allowed, and the case passed to issue. If the examiner does not allow the rejected claims after entry of this

Amendment, the examiner is encouraged to contact the undersigned by telephone to attempt to resolve any outstanding issues.

Respectfully submitted,

December 9, 2005
Date

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